

## CLAIMS

1 1. An apparatus comprising:  
2 a CPU;  
3 a memory coupled to the CPU;  
4 an advertising optimization mechanism residing in the memory and being  
5 executed by the CPU, the advertising optimization mechanism iteratively  
6 modifying and scoring a base advertising schedule in order to achieve an optimal  
7 advertising schedule.

1 2. The apparatus of claim 1 further comprising a graphical user interface with a  
2 plurality of icons which provide a plurality of choices for advertising  
3 optimization.

1 3. The system of claim 1 further comprising at least one index residing in the  
2 memory and cooperating with the the advertising optimization mechanism to  
3 iteratively modify and score the base advertising schedule.

1        4.        The apparatus of claim 3 wherein the at least one index comprises at least one of  
2                an exposure valuation index, an audience valuation index, an exposure recency  
3                index, a response index and a cost index.

1        5.        The apparatus of claim 1 further comprising a database mining engine residing in  
2                the memory.

1        6.        The apparatus of claim 5 wherein the database mining engine further comprises a  
2                plurality of Boolean filters used to screen the plurality of person-by-person  
3                records contained in the database.

1        7.        The apparatus of claim 1 further comprising a data conversion mechanism  
2                residing in the memory.

1        8.        The apparatus of claim 7 wherein the data conversion mechanism comprises a  
2                mechanism to convert data from a first data format to a second data format.

1        9.        The apparatus of claim 8 wherein the first data format is a plurality of television  
2                viewing records received from A.C. Nielsen and the second data format is a  
3                binary representation of the plurality of television viewing records.

1        10.       The system of claim 1 further comprising a plurality of indices residing in the  
2                memory and cooperating with the the advertising optimization mechanism to  
3                iteratively modify and score the base advertising schedule.

1        11.       The apparatus of claim 3 wherein the plurality of indices comprises at least two of  
2                an exposure valuation index, an audience valuation index, an exposure recency  
3                index, a response index and a cost index.

1        12.    A computer system for optimizing an advertising schedule, the computer system  
2            comprising:  
  
3            a CPU;  
  
4            a memory coupled to the CPU;  
  
5            a database residing in the memory, the database containing a plurality of person-  
6            by-person data files, the plurality of person-by-person data;  
  
7            a database mining engine residing in the memory;  
  
8            a data conversion mechanism residing in the memory, the data conversion  
9            mechanism comprising a mechanism for converting data from a first data format  
10          to a second data format; and  
  
11          a graphical user interface residing in the memory and being executed by the CPU,  
12          wherein the graphical user interface provides a plurality of choices for optimizing  
13          the advertising schedule according to a plurality of indices.

1        13.    The computer system of claim 12 wherein the first data format is a plurality of  
2            television viewing records received from A.C. Nielsen and the second data format  
3            is a binary representation of the plurality of television viewing records.

1        14.    The computer system of claim 12 wherein the plurality of indices includes an  
2            exposure valuation index, an audience valuation index, an exposure recency  
3            index, a response index and a cost index.

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- 1      15.    A program product comprising:  
  
2            an advertising optimization mechanism, the advertising optimization mechanism  
3            iteratively modifying a base advertising schedule to achieve an optimal  
4            advertising schedule; and  
  
5            signal bearing media bearing the advertising optimization mechanism.
  
- 1      16.    The program product of claim 16 wherein the signal bearing media comprises  
2            transmission media.
  
- 1      17.    The program product of claim 16 wherein the signal bearing media comprises  
2            recordable media.
  
- 1      18.    The program product of claim 16 further comprising a plurality of indices which  
2            are utilized by the advertising optimization mechanism to iteratively modify the  
3            base advertising schedule.

1        19.    The program product of claim 18 wherein the plurality of indices comprises an  
2            exposure valuation index, an audience valuation index, an exposure recency  
3            index, a response index and a cost index.

1        20.    The program product of claim 15 further comprising a data conversion  
2            mechanism, the data conversion mechanism comprising a mechanism for  
3            converting data from a first data format to a second data format.

1        21.    The program product of claim 20 wherein the first data format is a plurality of  
2            television viewing records received from A.C. Nielsen and the second data format  
3            is a plurality of variable length records which describe changes in media-related  
4            access data for a target audience.

1        22.    The program product of claim 20 wherein the first data format is a plurality of  
2            television viewing records received from A.C. Nielsen and the second data format  
3            is a binary representation of the plurality of television viewing records.

1        23.     A method for advertising optimization, the method comprising the step of  
2                 iteratively modifying a base advertising schedule according to at least one of a  
3                 plurality of indices in order to achieve an optimal advertising schedule.

1        24.     The method of claim 23 wherein the plurality of indices comprises an exposure  
2                 valuation index, an audience valuation index, an exposure recency index, a  
3                 response index and a cost index.

1        25.     The method of claim 23 wherein the step of iteratively modifying a base  
2                 advertising schedule comprises using a weighted effective frequency method to  
3                 score and compare a plurality of possible alternative advertising schedules.

1        26.     The method of claim 25 wherein the step of scoring and comparing a plurality of  
2                 possible alternative advertising schedules comprises the step of assigning a value  
3                 to a modified advertising campaign based on previous or anticipated individual or  
4                 collective advertising exposure.





- 1        28.    A computer-implemented method, the method comprising the steps of:
- 2            (a)    providing an advertising campaign containing a plurality of advertising
- 3                spots;
- 4            (b)    identifying one of the plurality of advertising spots as a least valuable
- 5                advertising spot;
- 6            (c)    removing the least valuable advertising spot from the advertising
- 7                campaign;
- 8            (d)    identifying a plurality of alternative options to add to the advertising
- 9                campaign;
- 10          (e)    selecting one of the plurality of alternative options and adding the selected
- 11                alternative option to the advertising campaign to achieve a modified
- 12                advertising campaign;
- 13          (f)    scoring the modified advertising campaign; and
- 14          (g)    repeating steps b, c, d, e, and f in order to achieve an optimal advertising
- 15                schedule.

1        29.    The method of claim 28 wherein the step of scoring the modified advertising  
2                campaign comprises the step of using a weighted effective frequency method to  
3                score the modified advertising campaign.

1        30.    The method of claim 28 wherein the step of scoring the modified advertising  
2                campaign comprises the step of using a time weighted effective frequency method  
3                to score the modified advertising campaign.

1        31.    The method of claim 28 wherein the step of scoring the modified advertising  
2                campaign comprises the step of using at least one index to score the modified  
3                advertising campaign.

1        32.    The method of claim 31 wherein the step of scoring the modified advertising  
2                campaign using at least one index to score the modified advertising campaign  
3                comprises the step of using a plurality of indices to score the modified advertising  
4                campaign.

1        33.     The method of claim 32 wherein the step of scoring the modified advertising  
2               campaign using a plurality of indices comprises the step of using at least two of an  
3               exposure valuation index, an audience valuation index, an exposure recency  
4               index, a response index and a cost index to score the modified advertising  
5               campaign.

1        34.     The method of claim 33 further comprising the step of using a series of product  
2               usage data as an input for the response index.

1        35.     A graphical user interface comprising at least one icon which accesses a plurality  
2                of person-by-person records contained in a database via a database mining engine  
3                and presents at least one advertising optimization choice to a user of the graphical  
4                user interface.

1        36.     The graphical user interface of claim 35 further comprising a scoring mechanism  
2                which provides a score for an advertising campaign based on a plurality of  
3                indices.

1        37.     The graphical user interface of claim 36 wherein the scoring mechanism uses a  
2                plurality of indices to score the advertising campaign.

1        38.     The graphical user interface of claim 37 wherein the plurality of indices  
2                comprises at least two of an exposure valuation index, an audience valuation  
3                index, an exposure recency index, a response index and a cost index.

1        39.     A computer system with a graphical user interface comprising:  
2                a CPU;  
3                a memory coupled to the CPU;  
4                a database residing in the memory, the database comprising a plurality of person-  
5                by-person media-related records which describe a series of choices and decisions  
6                made by an identified sample audience in relation to a media vehicle;  
7                a database mining engine residing in the memory and being executed by the CPU;  
8                and  
9                at least one icon which accesses the plurality of person-by-person records  
10               contained in the database via the database mining engine and presents at least one  
11               advertising optimization choice to a user of the graphical user interface.

1        40.     The computer system of claim 39 further comprising a scoring mechanism  
2                residing in the memory, the scoring mechanism providing a score for an  
3                advertising campaign.

1       41.     A computer system for analyzing data and optimizing an advertising schedule, the  
2             system comprising:  
  
3             a CPU;  
  
4             a memory coupled to the CPU;  
  
5             a database residing in the memory, the database comprising a plurality of person-  
6             by-person records which describe a series of television choices and decisions  
7             made by an identified sample audience;  
  
8             a database mining engine residing in the memory, the database mining engine  
9             comprising a plurality of Boolean filters used to screen the plurality of person-by-  
10            person records contained in the database; and  
  
11            a graphical user interface residing in the memory and being executed by the CPU,  
12            wherein the user interface accesses the person-by-person records in the database  
13            via the database mining engine and iteratively optimizes the advertising schedule  
14            using a predetermined method.

1        42.     The computer system of claim 41 wherein the predetermined method is a  
2                weighted effective frequency method.

1        43.     The computer system of claim 41 wherein the predetermined method is a time  
2                weighted effective frequency method.

1        44.     The computer system of claim 41 further comprising a data conversion  
2                mechanism, the data conversion mechanism comprising a mechanism for  
3                converting data from a first data format to a second data format.

1        45.     The computer system of claim 44 wherein the first data format is a plurality of  
2                television viewing records received from A.C. Nielsen and the second data format  
3                is a binary representation of the plurality of television viewing records.



1        46.     A method of calculating a ratio, the method comprising the steps of:  
2  
3        generating a first media-related exposure value;  
4        generating a second media-related exposure value; and  
5        combining the first and second media-related exposure values to create the ratio.

1        47.     The method of claim 46 wherein the step of combining the first and second  
2        media-related exposure values to create the media analysis ratio comprises the  
3        step of dividing the first media-related exposure value by the second media-  
4        related exposure value.

1        48.     The method of claim 46 wherein the step of generating the first media-related  
2        exposure value comprises the step of selecting a subset of person-by-person  
3        media-related access data from a database.

1       49.    The method of claim 46 wherein the step of generating the second media-related  
2            exposure value comprises the step of selecting a subset of person-by-person  
3            media-related access data from a database.

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1        50.    A method of calculating a media analysis ratio, the method comprising the steps  
2            of:  
  
3            selecting a subset of person-by-person media-related access data from a database  
4            thereby generating a first media-related exposure value;  
  
5            selecting a subset of person-by-person media-related access data from the  
6            database thereby generating a second media-related exposure value; and  
  
7            dividing the first media-related exposure value by the second media-related  
8            exposure value to create the media analysis ratio.

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1        51.     A method of scoring an advertisement, the method comprising the steps of:  
 2                scoring each of a plurality of individual exposures to the advertisement to  
 3                determine a value for each of the plurality of individual exposures; and  
 4                combining the values determined for each of the plurality of individual exposures  
 5                to achieve an overall score for the advertisement.

1        52.     The method of claim 51 wherein the step of scoring each of the plurality of  
 2                individual exposures to an advertisement to determine a value for each of the  
 3                plurality of individual advertising exposures comprises the step of using a  
 4                plurality of factors in combination to score each of the plurality of individual  
 5                exposures to an advertisement.

1        53.     A computer system with a graphical user interface comprising:

2                a CPU;

3                a memory coupled to the CPU;

4                a database residing in the memory, the database comprising a plurality of person-

5                by-person media-related records which describe a series of choices and decisions

6                made by an identified sample audience in relation to a media vehicle;

7                a database mining engine residing in the memory and being executed by the CPU;

8                and

9                a graphical user interface with at least one icon which accesses the plurality of

10               person-by-person records contained in the database via the database mining

11               engine and presents at least one advertising optimization choice to a user of the

12               graphical user interface.

1        54.     The computer system of claim 53 wherein the graphical user interface further

2                comprises a mechanism for evaluating a plurality of alternative advertising

3                options.

1        55.     The computer system of claim 54 wherein the mechanism for evaluating a  
2               plurality of alternative advertising options comprises a mechanism for distributing  
3               advertisements over time and space based on actual or anticipated individual or  
4               collective advertising exposure.

1        56.     The computer system of claim 54 wherein the mechanism for evaluating a  
2               plurality of alternative advertising options comprises a mechanism for assigning  
3               advertising response values to a plurality of media alternatives.

1        57.     The computer system of claim 54 wherein the mechanism for evaluating a  
2               plurality of alternative advertising options comprises a mechanism for assigning  
3               costs to the plurality of alternative advertising options based on time or space  
4               boundaries for the purpose of scoring the plurality of alternative advertising  
5               options.

1        58.     The computer system of claim 54 wherein the mechanism for evaluating a  
2            plurality of alternative advertising options comprises a mechanism for assigning  
3            individual exposure values to the plurality of alternative advertising options  
4            according to the value of at least one of a plurality of individual demographic  
5            measurements.

1        59.     The computer system of claim 58 wherein the mechanism for assigning individual  
2            exposure values comprises a mechanism for displaying the individual exposure  
3            values of the at least one of a plurality of individual demographic measurements.

1        60.     The computer system of claim 54 wherein the mechanism for evaluating a  
2            plurality of alternative advertising options comprises a mechanism for displaying  
3            the estimated influence of advertising messages based on the declining influence  
4            of advertising over time.

1       61.     The computer system of claim 54 wherein the mechanism for evaluating a  
2             plurality of alternative advertising options comprises a mechanism for displaying  
3             the estimated influence of advertising messages based accumulated advertising  
4             messages over time.

1       62.     The computer system of claim 54 wherein the mechanism for evaluating a  
2             plurality of alternative advertising options comprises a mechanism for assigning  
3             advertising value to multiple levels of advertising exposure based on frequency of  
4             exposure.

1       63.     The computer system of claim 62 wherein the mechanism for assigning  
2             advertising value to multiple levels of advertising exposure based on frequency of  
3             exposure further comprises a mechanism for displaying the assigned advertising  
4             values.



1       64.     The computer system of claim 62 wherein the mechanism for assigning  
2             advertising value to multiple levels of advertising exposure based on frequency of  
3             exposure comprises a mechanism for assigning advertising value to multiple  
4             levels of advertising exposure based on actual or anticipated exposure to an  
           advertisement.

1        65.    A method for comparatively scoring a plurality of advertising options comprising  
2            the step of using a graphical user interface to evaluate a plurality of alternative  
3            advertising options.

1        66.    The method of claim 65 wherein the step of using a graphical user interface to  
2            evaluate a plurality of alternative advertising options comprises the step of  
3            distributing advertisements over time and space based on actual or anticipated  
4            individual or collective advertising exposure.

1        67.    The method of claim 65 wherein the step of using a graphical user interface to  
2            evaluate a plurality of alternative advertising options comprises the step of  
3            assigning advertising response values to a plurality of media alternatives.

1        68.    The method of claim 65 wherein the step of using a graphical user interface to  
2            evaluate a plurality of alternative advertising options comprises the step of  
3            assigning costs to the plurality of alternative advertising options based on time or  
4            space boundaries to score each of the plurality of alternative advertising options.

1        69.    The method of claim 65 wherein the step of using a graphical user interface to  
 2            evaluate a plurality of alternative advertising options comprises the step of  
 3            assigning individual exposure values to each of the plurality of alternative  
 4            advertising options according to the value of at least one of a plurality of  
 5            individual demographic measurements.

1        70.    The computer system of claim 69 wherein the step of assigning individual  
 2            exposure values to each of the plurality of alternative advertising options  
 3            according to the value of at least one of a plurality of individual demographic  
 4            measurements comprises the step of displaying the individual exposure values of  
 5            the at least one of a plurality of individual demographic measurements.

1        71.    The method of claim 65 wherein the step of using a graphical user interface to  
 2            evaluate a plurality of alternative advertising options comprises the step of  
 3            displaying the estimated influence of advertising messages based on the declining  
 4            influence of advertising over time.

1        72.    The method of claim 65 wherein the step of using a graphical user interface to  
2            evaluate a plurality of alternative advertising options comprises the step of  
3            displaying the estimated influence of advertising messages based accumulated  
4            advertising messages over time.

1        73.    The method of claim 65 wherein the step of using a graphical user interface to  
2            evaluate a plurality of alternative advertising options comprises the step of  
3            assigning advertising value to multiple levels of advertising exposure based on  
4            frequency of exposure.

1        74.    The method of claim 73 wherein the step of assigning advertising value to  
2            multiple levels of advertising exposure based on frequency of exposure comprises  
3            the step of displaying the assigned advertising values.

1        75.     The method of claim 73 wherein the step of assigning advertising value to  
2             multiple levels of advertising exposure based on frequency of exposure comprises  
3             the step of assigning advertising value to multiple levels of advertising exposure  
4             based on actual or anticipated exposure to an advertisement.

1 76. A method of calculating a score for an advertising spot, the method comprising  
2 the steps of:  
  
3 determining a separate value for each exposure of each of a plurality of audience  
4 members to the advertising spot; and  
  
5 summing the exposure values for each of the plurality of audience members to  
6 calculate the score for the advertising spot.

1 77. The method of claim 76 wherein the step of determining a value for each exposure  
2 of each of a plurality of audience members to the advertising spot comprises the  
3 step of a using a weighted effective frequency method to determine a value for  
4 exposing each of a plurality of audience members to the advertising spot.

1 78. The method of claim 76 wherein the step of determining a value for each exposure  
2 of each of a plurality of audience members to the advertising spot comprises the  
3 step of a using a time weighted effective frequency method to determine a value  
4 for exposing each of a plurality of audience members to the advertising spot.



1        82.    The method of claim 81 wherein the step of the step of using a using  
2            predetermined formula to sum the exposure values for each of the plurality of  
3            audience members comprises the step of using the formula

4            
$$\sum_{i=1}^{N_a} \left[ V_I^n(i) \times \prod_{d=1}^D V_A^d(i) \right]$$

5            to sum the exposure values for each of the plurality of audience members.

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